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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,472	02/02/2001	Masaaki Hiroki	SEL 238	7144

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EXAMINER	
LIN, JAMES	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/776,472	HIROKI ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,7,19,26,31 and 48-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,7,19,26,31 and 48-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/10/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/10/06 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 6-7, 19, 31, 48, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (WO98/24271, hereafter '271. References made are to the English equivalent, US Patent Application 2002/0041926) in view of Iguchi (WO98/27579, hereafter '579. References made are to the English equivalent US Patent Application 2002/0009536.) and Kasubuchi et al. (U.S. Patent 3,878,517, hereafter '517).

Claims 6, 20, 31, and 37: '271 teaches filling an ink-jet nozzle with ink (an application liquid) for forming an electroluminescent (EL) layer and applying it to a pixel column (Abstract; Fig. 1).

'271 does not explicitly teach discharging the application liquid while the nozzle and pixel column are connected through the application liquid nor traversing by scanning along a direction parallel to a pixel column. The differently colored pixels of '271 appear to be small rectangles rather than elongated stripes (Fig. 8). However, '579 teaches that the differently colored areas of plasma displays (a particular type of electroluminescent displays), may be elongated stripes, which are printed by traversing a nozzle along the direction parallel to the barrier ribs ([0206]-[0207]), which are between, and therefore parallel to the underlying electrodes (Fig. 1; [0293]). '517 teaches that ink-jet printing using ultrasonic oscillations may be used to provide ink intermittently or to provide a continuously-discharged stream of droplets (col. 7, lines 6-24). However, '579 teaches that the deposited material in the pixel column may be connected to the nozzle via the liquid stream (Fig. 1). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used different colored pixels of elongated stripe shapes because '579 teaches that such is an operative embodiment of differently colored pixels for electroluminescent displays and to have deposited such stripes by a continuous stream because '579 teaches that a continuous stream connecting the nozzle and the pixel column may be used to deposit such stripes and because '517 teaches that ultrasonically-operated ink-jet printers are capable of providing continuous streams.

'579 teaches that when depositing electroluminescent material between partition walls of EL displays ([0001]-[0003]), it is desirable to maintain a constant distance between the substrate and the nozzles, and that such distance may be maintained by an element in contact with the partitions ([0246]-[0249]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact element in contact with the partition walls in order to have maintained a constant distance between the nozzle and the substrate during the coating process.

Claim 7: '271 demonstrates that the orifice may have a smaller inside diameter than the rest of the nozzle (Fig. 11), but does not explicitly teach the provision of a heater on the orifice. '332 teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26).

Claims 19, 51: '271 teaches that the ink-jet printer prints between partition walls (banks) (105) covering at least an edge portion of pixel electrodes (101, 102, 103). (Fig. 1; [0043]-[0050]).

Claim 50: '271 teaches that the banks may comprise resin [0046].

Claim 52: Applicant cites Figs. 13B and 13C as support for new claims 52. In order for the figures to support the claim language, the nozzle itself or the ejection head as a whole must be considered to meet the limitation of a "contact element attached to the nozzle". The material is ejected through the ejection head as a whole, and therefore through the contact element.

5. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Iguchi '579 and Kasubuchi '517 as applied to claim 6 and 31 above, and further in view of Kurosawa et al. (U.S. Patent 6,057,647, hereafter '647).

'271, '579, and '517 are described above. '271 teaches that the EL elements may be deposited on top of thin film transistor (TFT) elements ([0015], [0134], [0138]) and teaches that the EL elements may be formed by forming pixel electrodes on a substrate and forming a bank overlapping the edges of the pixel electrodes on the pixel electrodes, as discussed above. '271 does not explicitly teach that a TFT is formed on a substrate, an insulating film is formed on the TFT, and the pixel electrodes (and then banks) are formed on the insulating film.

'647 teaches a method of depositing EL elements onto TFTs, in which TFTs (2, 3) are formed on substrate (31) and then insulating layer (52) is formed on the TFTs, followed by the anode (161) (as the pixel electrodes of '271) are anodes and partitions (63) (Fig. 14, col. 11, lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the configuration of '647 as the particular configuration to integrate the EL elements of '271 with the TFTs of '271 with a reasonable expectation of success because '647 teaches that that configuration is an operative method of using TFTs in conjunction with EL elements.

6. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Iguchi '579 and Kasubuchi '517 as applied to claim 6, and further in view of Horike (U.S. Patent 4,281,332, hereafter '332),

'271, '579, and '517 are described above, but do not explicitly teach that the ink is heated during discharge. However, the examiner takes Official Notice that it is very well known in the art of ink-jet printing to control the viscosity of the ink by heating it. See, e.g, '332, which teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have heated the ink during ink jet printing in order to have controlled the viscosity. '271 does not explicitly teach that the ink-jet nozzle works using ultrasonic oscillation, but instead teaches the use of a vibration pulse pressure dispenser (See [0083]-[0087]). '332 teaches a particular pulse pressure dispenser (col. 1, lines 6-11), which uses ultrasonic vibrations (i.e., oscillations) in order to provide pressure pulses (col. 3, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the ultrasonic vibrator of '332 as the particular vibrator of '271 with a reasonable expectation of success because '332 demonstrates that ultrasonic vibrations are capable of providing the pressure pulses to operate ink-jet printing nozzles.

Response to Arguments

7. Applicant's arguments filed 7/10/2006 have been fully considered but they are not persuasive.

Claims 6-7, 19, 31, 48, and 50-52 as rejected by Miyashita '271, Iguchi '579, and Kasubuchi '517.

The Applicant argues that the height sensor 40 of Iguchi '579 is not attached to the nozzle on the paste applicator 20. However, taking the apparatus as a whole, the height sensor 40 is indirectly attached to the paste applicator 20, which is in turn attached to the nozzle. Claim 6 does not require a particular connection between the nozzle and the contact element.

The Applicant argues that the specification teaches "[a] tube shape part is attached to the tip of the nozzles, and this is referred to as a contact element throughout the specification" (pg. 39, lines 7-8) and that the contact element is attached to the tip of the nozzle. However, neither

the cited lines nor the specification as a whole limit the contact element to be a tube shape part attached to the tip of the nozzles. For example, the nozzle may directly contact the bank, fulfilling a role as a contact element (pg. 4, lines 5-6). Therefore, a nozzle is attached to the apparatus (i.e., a contact element), wherein the apparatus comprises the height sensor 40 (Fig. 3) and at least a second nozzle (Fig. 1) that discharges the EL material.

Conclusion

8. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Thursday 8 - 5:30 and Friday 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/4/2006

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER